

Health Changes in Sri Lanka: Benefits of Primary Health Care and Public Health

Asia-Pacific Journal of Public Health

24(4) 663–671

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DOI: 10.1177/1010539512453670

http://aph.sagepub.com



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Abstract

The Democratic Socialist Republic of Sri Lanka is an island in the Indian Ocean that has achieved a unique status in the world with health indicators that are comparable with those of developed countries. This is illustrated, among others, by the reduction in both child and maternal mortality in the country. This achievement is the result of a range of long-term interventions, including providing education and health care free of charge, training of health care workers, developing public health infrastructure in rural areas, and adopting steps to improve sanitation, nutrition, and immunization coverage.

Keywords

maternal mortality, primary and public health care

Introduction

Sri Lanka is an island in the Indian Ocean, located about 31 km off the southern coast of India (Figure 1). It has a land area of 65 610 km² and a population of approximately 20 million. More than 84% of the population resides in the rural and estate sectors, and approximately 16% dwell in urban areas.^{1,2} The country is governed by a parliamentary democratic system headed by a president with executive powers and is divided into 9 administrative divisions (provinces).

Sri Lanka is a low-middle-income country with an economy of \$49.55 billion (2010 World Bank estimate) and a per capita gross domestic product (GDP) of about \$5077.98 purchasing power parity.³ Despite the total expenditure on health being relatively low (approximately 4.2% of the GDP; Figure 2),⁴ Sri Lanka is noted to have achieved a relatively high health status.

Health care delivery is from both the state and the private sector. The state health sector is decentralized with the Ministry of Health and the Provincial Health Departments providing a wide range of services, including promotive, preventive, curative, and rehabilitative health care. Public health services at the community level are provided by an extensive network of “health units” spread throughout the country. The overall use of health services in the country is high in spite of low cost.⁴ Although health indicators are comparable with those of developed nations,

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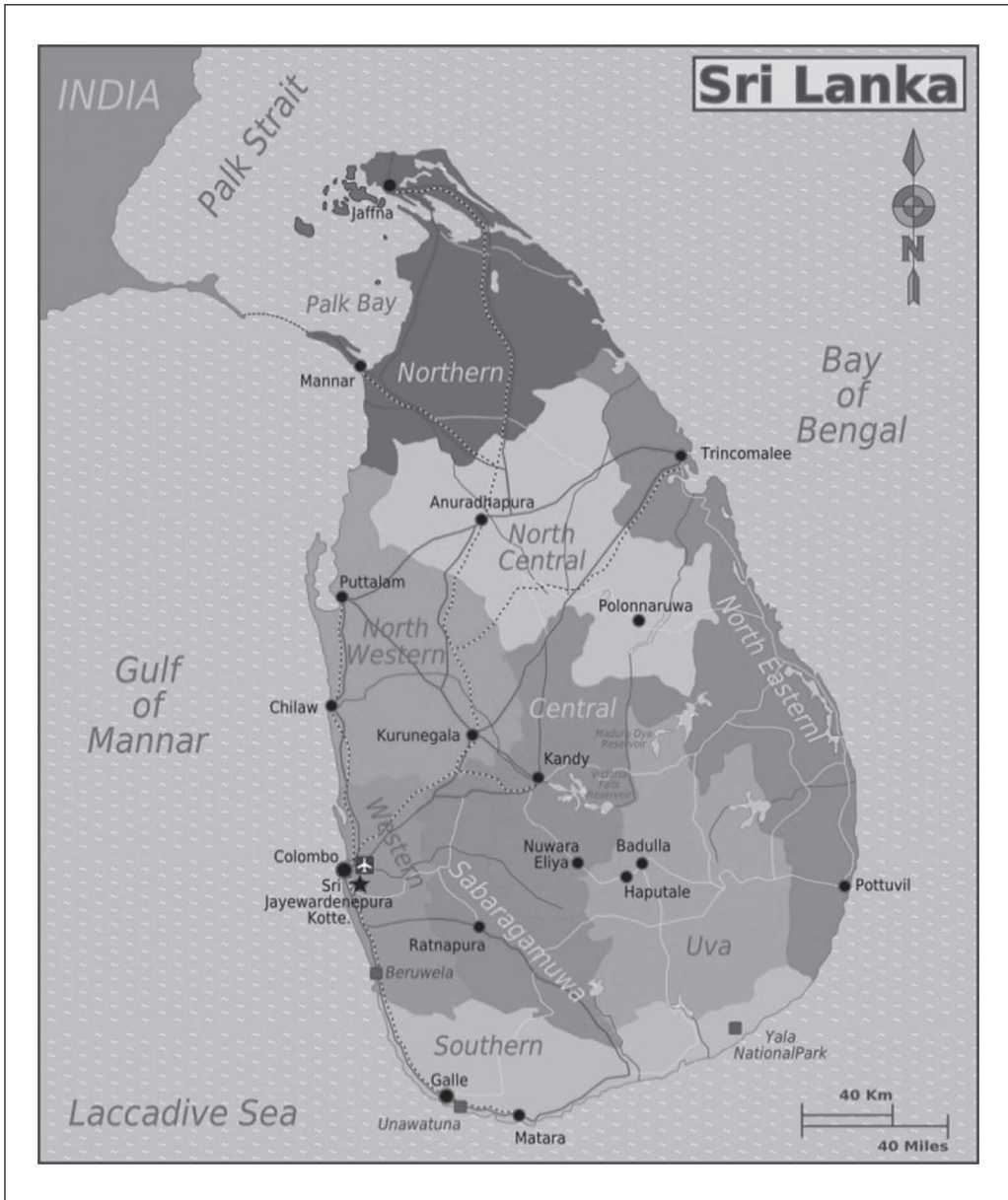


Figure 1. Map of Sri Lanka^a

^ahttp://m.wikitravel.org/en/Sri_Lanka

there are many challenges and areas for improvement arising from ongoing changes in the social and economic situation in the country.⁵

Methodology

Relevant research articles were retrieved from online search engines, databases, and online journals. Resources accessed include PubMed, *PLoS Medicine*, BioMed Central, Google Scholar, and official publications of the Government of Sri Lanka. Keywords used were the following:

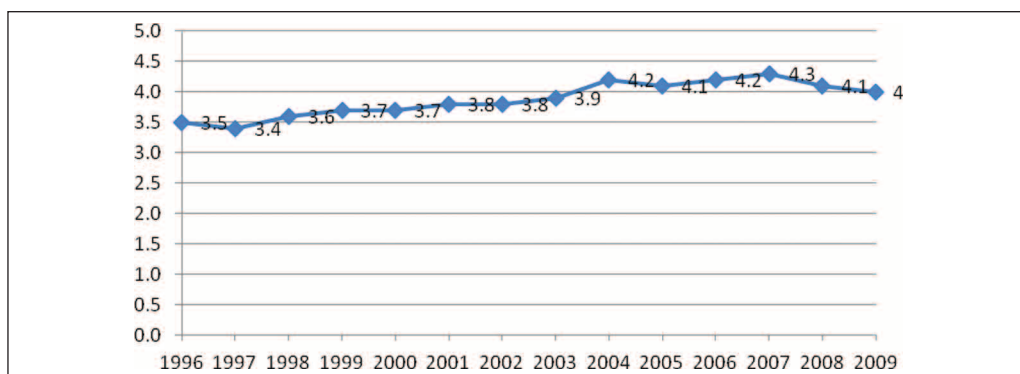


Figure 2. Total health expenditure as percentage of gross domestic product (GDP; 1996-2009)

healthcare system in Sri Lanka, public health, benefits of primary healthcare, and maternal and child health. Documents and publications from the library of the Faculty of Medicine, Colombo, and the Postgraduate Institute of Medicine were also perused. Publications from 1995 to date were considered.

Results

There has been measured improvement in Sri Lanka's health system and health outcomes over the past 8 decades. In the early 1930s, the maternal mortality of the island nation mirrored that of the region, with a maternal mortality ratio (MMR) of more than 2000 deaths per 100 000 live births.^{6,7} Over the next decade and a half, there was a gradual decline in maternal deaths, and in 1947, the MMR had halved to 1060 per 100 000 live births.^{7,8} The decline continued during the postindependence period, with 340/100 000 live births recorded in 1960 and 80/100 000 live births recorded in 1977.⁷ The 3 decades that followed have shown continued progress. The MMR declined to 61 deaths per 100 000 live births in 1995,⁹ and the adjusted MMR in 2008 was 39/100 000 live births,¹⁰ indicating steady progress toward the achievement of the Fifth Millennium Development Goal.

The status of child health in Sri Lanka has shown similar improvement with a steady decline in neonatal and infant mortality. In the half century between 1945 and 1996, neonatal mortality declined from 75.5 to 12.9 per 1000 live births. Infant mortality dropped from 140 to 17.3 per 1000 live births during the same period.⁸ The following years showed a more gradual decline with neonatal mortality recorded as 9 per 1000 live births and infant mortality at 13 per 1000 live births in 2009.¹⁰ The under-5 mortality rate, a critical indicator of child well-being, has also steadily declined⁸ since 1950 and has varied between 20 and 25 per 1000 live births from the early 1990s until 2006.¹¹ In 2009, this dropped further to 15 per 1000 live births,¹⁰ with Sri Lanka ranking 118 out of the 193 United Nations member countries. This is in sharp contrast to other countries of the region such as India (66/1000 live births), Pakistan (87/1000 live births), and Nepal (48/1000 live births).¹⁰

Sri Lanka has progressed through Thompson's classic model of demographic transition over the past 8 decades. Mortality decreased rapidly during the late 1930s and following World War II because of the control of infectious diseases (most notably malaria) and the expansion in public health activities.¹² A more gradual decline was seen from the mid-1950s, mostly as a result of a substantial reduction in infant, child, and maternal mortality.⁴

Although population growth was initially rapid, a significant decline in the crude birth rate was seen from 36.6 per thousand of the population in 1960 to 17.7 per thousand of the population

in 1996.¹³ It is noteworthy that the decline in fertility levels preceded the introduction of family planning services at a policy level and that the initial decline was because of changes in the proportion of women getting married.^{4,13} The adoption of family planning as a national policy in 1965 completed the foundation for fertility transition in Sri Lanka. The Demographic and Health Survey (DHS) of 2000 recorded a fertility rate of 1.9/1000 women, indicating that replacement-level fertility was achieved.¹³ The 2006/2007 DHS recorded a slight increase, with a fertility rate of 2.4/1000 women.¹¹

The average life span has risen steadily, from approximately 43 years in 1946 to 74 years in 2009, the longest life expectancy of any nation in South Asia.^{10,14} The increasing life expectancy and the rapid decline in fertility have resulted in Sri Lanka transforming into one of the most rapidly ageing countries of Asia. The percentage of elderly people (older than 60 years) has increased from 4.2% in 1971 to 9.2% in 2000 and projected to reach 28.3% by the year 2050.^{2,15}

The factors related to the relatively high health indicators are of interest to public health professionals, researchers, and policy makers because they are the foundation for a success story that may serve as a model for other countries in the region.

The significant gains in key health indicators are largely a result of the policy-level initiatives that have ensured widespread accessibility to health care and education.⁴ The provision of free education has especially empowered women, ensuring that mothers have the capacity to make use of the services provided, including health education, immunization, and contraception.

Provision of Health Care Services

In the early part of the last century, provision and access to health care services was limited. However, the importance of public health service provision was recognized by the establishment of the Health Unit system in 1926.¹⁶ Each Health Unit included a public health team led by the Medical Officer of Health and offered comprehensive public health and primary health care services to a demarcated area. Implementation of a primary health care model in the 1950s ensured that the government paid attention to the preventive aspects of health care while meeting curative targets.¹⁷ The Health Unit system was eventually implemented island wide, and services such as maternal and child health care (MCH), environmental sanitation, and prevention of communicable diseases were provided at the community level. At present, there are approximately 300 Health Units scattered throughout the island.¹⁴

Public health care is free at the point of delivery and ranges from small municipal dispensaries providing ambulatory care to tertiary care hospitals. The vast majority of the population lives within 3 km of a health care facility. Patients can seek care at an institution of their choice, although it is recommended that primary level services are used for first contact.⁴ This widespread availability and accessibility to quality health care, especially for women and children, is responsible for the declining mortality rates over the years.

Maternal and Child Health Care

Reduction in maternal mortality has been a remarkable achievement. The impetus was the inclusion of MCH services in the Health Unit system, thus replacing the untrained village midwife with a team of health professionals providing skilled antenatal care and trained assistance at childbirth.⁷ Health infrastructure was also improved, with the expansion of the number of hospitals and maternity homes available for delivery under the care of trained birth attendants.⁸ Improved roads and transports services ensured accessibility.⁷ As MMR declined, emphasis in training was given based on the emerging causes for maternal deaths—for example, administration of ergometrine for postpartum hemorrhage.⁷ Further decline of the MMR is attributed to

availability of blood transfusion services and antibiotics.^{7,18} The reduction of maternal mortality is also strongly associated with the decline in fertility and other related factors such as delayed age at marriage, reduced parity, and spacing of pregnancies.¹⁸ The DHS in 2006/2007 revealed that 98.5% of births were attended by a trained health care professional, and 97.9% took place in an institution. More than 99% had seen a health care professional at least once during the antenatal period.¹¹

Data collection systems were developed for the monitoring of service provision. Maternal deaths were made notifiable in 1989, and maternal death reviews were initiated to identify the contributory causes of maternal deaths.^{7,19} Political commitment was strong, and benefits such as food supplementation and food subsidy and legal enactments such as amendments to the Maternity Benefit Ordinance contributed toward the reduction of MMR.

The enhancement of the quality of maternal health care and relatively high education level of mothers also translates to better health care for the young child. Under-5 mortality rates over the past half century have declined mainly as a result of the declines in postneonatal deaths, reflecting the practice of child survival interventions such as breastfeeding, immunization, better nutrition, and use of oral rehydration salts.^{20,21}

The strong government policy in favor of exclusive breastfeeding (EBF) during early infancy was a decisive factor during the 1980s. The Sri Lanka Code for the Promotion of Breastfeeding and Marketing of Breast Milk Substitutes was developed in 1981, and in 1993, the Ministry of Health signed an agreement with manufacturers of infant formula to end the distribution of free/low-cost supplies to health institutions.²¹ The National Programme for Breast Feeding Promotion and the Baby Friendly Hospitals initiative, both in the 1990s, were responsible for the increase in EBF for infants younger than 4 months of age from 19% in 1995 to 54% in 2000 and to 75.8% in infants younger than 6 months in 2006/2007.^{11,22}

The establishment of the epidemiological unit in 1959 strengthened both disease surveillance and control of infectious diseases, including diarrheal and vaccine-preventable diseases.²³ Public health activities against vaccine-preventable disease were streamlined in 1978 with the introduction of the Expanded Programme on Immunization (EPI).²³ Immunizations against 6 key childhood illnesses were covered and universal childhood immunization (80% coverage of infants under EPI) was achieved in 1990.^{20,22} Introduction of tetanus toxoid for pregnant mothers was instrumental in reducing the incidence of neonatal tetanus.¹¹ The EPI is revised regularly based on epidemiological data.

Oral rehydration therapy was introduced successfully as a treatment for watery diarrhea in 1983/1984. This, together with improved sanitation and intensive health education programs to promote hand washing and other hygienic practices, has dramatically reduced the incidence of diarrheal diseases.^{20,23}

The 2006/2007 DHS revealed early initiation of breast feeding in 83.3% of deliveries and a mean duration of EBF of 4.8 months. EBF was noted in 75.8% of infants younger than 6 months.^{11,22} More than 97% of children between 12 and 23 months of age were fully vaccinated under the EPI program.¹¹ In addition, health-seeking behavior of mothers with children younger than 5 years was satisfactory, with approximately 80% obtaining treatment from a health care provider or facility for acute respiratory infections, fever, or diarrhea.¹¹

The Challenges Caused by the Tsunami and Civil War

The 2004 Boxing Day tsunami devastated coastal areas of the island and resulted in more than 31 000 deaths and the displacement of 850 000 people. Health care providers at the grassroots level were among the displaced, and 92 health facilities were destroyed, imposing an increased burden on the existing health services.²⁴ By December 2005, more than 500 000 people were

exposed to the risk of potential outbreaks of communicable diseases such as diarrhea, measles, malaria, and dengue. Services of the Health Units that had survived the disaster were also used. Medium- and long-term interventions commenced to provide ambulatory care, MCH services, sanitation, nutritional optimization, and reconstruction of damaged health facilities.²⁵ Although emergency relief provision was largely successful,²⁵ long-term health needs, including psychological needs, were less satisfactorily addressed.^{26,27}

The recently concluded 30-year civil war between the government of Sri Lanka and Liberation Tigers of Tamil Eelam (LTTE) caused significant challenges and threats to the security, environment, economy, and the health system of the country. It caused damage to the infrastructure of the health sector in the north and east provinces. Many health institutions were destroyed or damaged, and some were closed as a result of lack of manpower and resources or for security reasons. The health system and the infrastructure that was previously well established was a factor that helped avoid a complete breakdown of health care provision, even during the height of the war. The government and the international agencies such as WHO and UNICEF were able to maintain both curative and preventive services even in the rebel-held areas.²⁸

After a 26-year long military campaign, the Sri Lankan military defeated the Tamil Tigers in May 2009. There are still unmet needs in human resources for health, water and sanitation, and mental health in the northern province.²⁸ There is a severe shortage of almost all the categories of health staff but especially specialists and field-level health workers such as the family health workers or public health midwives (PHMs).²⁹ Several initiatives were undertaken by the Ministry of Health to resolve the human resources for health crisis. PHMs were recruited from the affected areas, and to increase the recruited numbers, the selection criteria were readjusted, so that fewer qualifications were required than earlier.³⁰ In the same manner, nurses were also recruited from affected areas to be employed in the internally displaced person camps during the conflict and postconflict periods. In 2004, more than 90% of the trainees attending the PHM training course were posted to rural settings after completion of the training course, and the highest proportion was sent to the northern and eastern provinces in 2006, 2007, and 2008.³¹ The government paid a special allowance (110% of the salary) to doctors from outside the northern and eastern provinces working in hospitals in the Jaffna, Vavuniya, Trincomalee, and Batticaloa districts.³²

Discussion

This study demonstrates the health changes in Sri Lanka and the benefits of primary health care and public health. Though there have been several achievements in the health service, Sri Lanka continues to face some challenges as it strives toward the improvement of key health indicators.

Sri Lanka has almost completed the phases of demographic transition⁴ with low mortality and low fertility. Infectious diseases are no longer the leading causes of mortality because of the increasing prevalence of noncommunicable diseases (NCDs). The leading causes of hospital mortality in 2007 were ischemic heart disease, neoplasms, and cerebrovascular disease.³³ Although traumatic injuries are the leading cause of hospital admissions, other NCDs such as diabetes, hypertensive disease, and asthma are increasingly dominating the hospital morbidity statistics.^{14,33} The number of government hospital beds have increased since 1945, but from 1960 to date, it has remained static at approximately 3 beds per 1000 population, just managing to keep up with population growth.^{4,14} Both inpatient and ambulatory care services need to be expanded to meet changing health care needs, particularly the growing epidemic of NCDs.

The demographic changes in the country are reflected by contraction of the base of the population pyramid. The accelerated aging of the population brings about new challenges to the health care as well as the social welfare system of Sri Lanka. There will be greater demand for employment, housing, and food as well as for health needs. Breakdown of traditional support systems

because of social changes would result in a need for the state health and welfare system to provide services such as long-term nursing care and formal income support for elderly people.^{5,15}

Although national level indicators for maternal and child well-being are remarkable, there is still a district level disparity, especially in the estate sector. However, comparisons of the DHS of 2000 and 2007 indicate that there has been an improvement of the service provision in the estate sector, with more skilled assistance during delivery and fewer home deliveries.^{11,34} Data on maternal mortality indicate that the unmet need for contraception is 39% among all maternal deaths, 52% among mothers aged >35 years, and 85% for those with a parity of 4 and above.⁹ The relatively high proportion of deaths (10%)⁹ caused by septic abortion is also an indirect indicator of the unmet need. Provision of accessible and equitable emergency obstetric care is essential to maintain and improve the current situation.^{7,9,18}

It is also important to avoid complacency about the quality of care provided. Innovative measures need to be developed to prevent “indirect” causes of maternal deaths.⁷ In addition, programs can be developed to reduce maternal morbidity, especially anemia, during pregnancy.^{7,11}

The indicators of child well-being also show an interdistrict variation. Consecutive DHSs have indicated that neonatal mortality, infant mortality, and under-5 mortality are higher in the rural and estate sectors when compared with the urban sector.^{11,34} However, background characteristics indicate that this is related to lower female autonomy, lower education levels, and lower income, and the inequalities are a socioeconomic phenomenon rather than a regional one.³⁵ Similar socioeconomic factors may also explain the comparatively lower vaccination coverage and health seeking in the estate sector.¹¹ Similarly, analysis of breastfeeding practices show sub-populations in the urban and estate sector where poor breastfeeding practices such as delayed initiation and lack of EBF are prevalent.²²

Improvement of nutrition status is also an ongoing challenge. Among pregnant women, 34% have anemia, including 13.3% with moderate to severe anaemia.³⁶ Regardless of place of residence (urban/rural/estate), the prevalence of anemia among children younger than 5 years is approximately 30% and is strongly associated with low levels of maternal education.³⁶ According to the 2006/2007 DHS data, stunting is seen among 18% of children, whereas 15% were acutely malnourished/wasted.¹¹ Stunting was significantly higher in the estate sector.¹¹ There has not been a marked improvement of these indicators when compared with findings in 2000.^{34,37}

A well-designed and previously established health and social service system was a factor that helped Sri Lanka face the challenges caused by the tsunami and the civil war. Continuous provision of social services during the conflict accounted for the steady improvement in basic health indicators of the national average and underprivileged areas in Sri Lanka, in spite of the prolonged conflict.²⁸

Conclusion

It is evident that Sri Lanka achieved her success through a range of long-term interventions, including provision of universal free education and health care, training of health care workers at all levels, development of public health infrastructure in rural areas, improvement of immunization coverage, and nutrition of mothers and children. These interventions were strongly supported by the state and by policy makers and were implemented from the community level upward. Future challenges lie in reducing the regional disparities of health service provision and use. In addition, meeting the health care requirements of the aging population, fulfilling unmet health needs of the war-affected areas, and management of the epidemic of NCDs are of special concern.

Acknowledgments

Dr Ashwini de Abrew, Lecturer, Dr Dilhani Dassanayake, Research Assistant, and Ms Dilani Perera, Research Assistant, Medical Education Development and Research Centre, Faculty of Medicine, University

of Colombo, Sri Lanka are gratefully acknowledged for their contribution in literature review and preparing the manuscript.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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